



Attorney Docket No.: 536-009.002  
Serial No.: 09/454,556

#### DECLARATION

I, Gunther Lippert, declare and say as follows.

I am a scientist at IHP GmbH - Innovations for High Performance Microelectronics / Institut für innovative Mikroelektronik, Im Technologiepark 25, 15236 Frankfurt (Oder), Germany ("the Institute"). I have worked at the Institute and its predecessor corporations for the past 21 years. For 9 of those years, I have worked on the Silicon/Germanium material system, especially its application in Hetero Bipolar Transistors (HBT), and focused my attention to the deposition of this material, and on diagnostic aspects of this material. In this field I received a Ph.D. degree with the thesis: "Impurities in Si- Molecular Beam Epitaxie" from the Universitaet der Bundeswehr, INSTITUTE OF PHYSICS, in 1995.

As author/coauthor I have published 27 publications in referred journals, and I held 38 presentations at international conferences.

I am an inventor or co-inventor on following national and international patents (which all have to do with the fabrication of solid state devices).

DE0000721476A1 [DE] VERFAHREN ZUR HERSTELLUNG VON MISCHSCHICHTEN  
DE00013755579A1 [DE] Silizium-Germanium-Heterobipolartransistor  
DE0013952423A1 [DE] Silizium-Germanium-Heterobipolartransistor und Verfahren zur Herstellung  
DE0013952477A1 [DE] MOSFET und Verfahren zur Herstellung der Schichten für einen Schmitt-Trigger  
DE0000335829A1 [DE] Halbleiterschaltkreis  
DE0000003951A1 [DE] Tunneldiode und Verfahren zu ihrer Herstellung  
DE00004311815A1 [DE] Verfahren zur Herstellung von im wesentlichen defektfreien pitterfängerepanten  
DE0000922486A1 [DE] Vorrichtung zur Fernreinigung scheibchenförmiger Objekte in einem Apparat  
DE0000003590A1 [DE] Verfahren zur Ausbildung einer hochleitfähigen Aluminiumschicht

TECHNICAL

NOV 25 2003

RECEIVED

Attorney Docket No.: 536-009.002  
Serial No.: 09/454.566

EP000997489A1 [DE] SILIZIUM-GERMANIUM-HETEROBIPOLARTRANSISTOR UND VERFAHREN ZUR  
HERSTELLUNG ...  
EP000997489A1 [DE] MOSFET UND VERFAHREN ZUR HERSTELLUNG DER SCHICHTEN EINES  
DERARTIGEN ...  
US2003071278A1 [ ] SILICON-GERMANIUM HETERO BIPOLAR TRANSISTOR WITH SHAPED  
IMPLANTATION ...  
US2003071278A1 [ ] SILICON GERMANIUM HETERO BIPOLAR TRANSISTOR  
US2003071277A1 [ ] SILICON GERMANIUM HETERO BIPOLAR TRANSISTOR HAVING A GERMANIUM  
CONCENTRATION ...  
US2003071277A1 [ ] MOSFET AND METHOD OF ITS FABRICATION  
WO1999026597A1 [DE] SILIZIUM-GERMANIUM-HETEROBIPOLARTRANSISTOR UND VERFAHREN ZUR  
HERSTELLUNG ...  
WO1999026597A1 [DE] MOSFET UND VERFAHREN ZUR HERSTELLUNG DER SCHICHTEN EINES  
DERARTIGEN ...

Based on my education and experience, I believe that I qualify as a person who is expert in the field of solid-state device fabrication.

I have reviewed the specification, claims and drawings of U.S. patent application ser. no. 09/319,699 (filed July 19, 1999) for a *Silicon-Germanium Hetero-Bipolar Transistor, and Method of Making its Various Epitaxial Layers*, as well as the Office action mailed July 11, 2003. In particular I have reviewed claim 23, 24, and 43 in the form as referenced in the Office action mailed July 11, 2003, i.e. in the form as provided in the Amendment in Conjunction with Filing a Continued Prosecution Application, mailed Aug. 8, 2002. Claims 23, 24, and 43 each recite incorporating carbon into at least a collector, base, or emitter layer of a silicon-germanium hetero bipolar transistor in a concentration between  $10^{18}$  cm<sup>-3</sup> and  $10^{21}$  cm<sup>-3</sup>, so as to cause a change in the lattice of less than  $5 \times 10^{-3}$  (i.e. of less than one half percent). The specification discloses the step at e.g. page 6, lines 20-31. From a reading of the specification I understand how the steps in claims 23, 24, and 43


Attorney Docket No.: 535-009.002

Serial No.: 09/454,566

are performed. Further, it is my opinion, based on my education and experience in the field of semiconductor fabrication, that any person skilled in the art would understand from the specification how to perform the steps recited in claim 23, 24, and 43.

Further, I hereby declare that I have myself fabricated a Silicon-Germanium Hetero-Bipolar Transistor device having at least in one layer carbon in a concentration of as much as  $10^{21}$  (atoms) per  $\text{cm}^3$ , and by direct measurement I have determined that the change in the lattice was less than one half percent-

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Gunther Lippert Full name of declarant	
 Declarant's Signature	11.11.2003 Date
Frankfurt Residence	Fed. Rep. Germany Citizenship